

## Glen Cove Creek Mixed-Used Waterfront Redevelopment Project

### **NYSDEC, NYSDOS, USACE Applications Project Description and Presumptively Incompatible Use Discussion**

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## **I. Project Description**

Note: All proposed upland building improvements are located above elevation 10' NGVD or landward of a functional bulkhead greater than 100 feet in length and constructed prior to 1977. Therefore, the NYSDEC Article 25 application covers waterfront reconstruction/redevelopment activities only.

### **A. *Garvies Point Road to Captain's Cove***

Garvies Point Beach shall be reconfigured with a new turnaround and parking area landward of the limit of NYSDEC Article 25 jurisdiction, reconfiguration of the public esplanade, and construction of a public boardwalk partially within NYSDEC Article 25 jurisdiction. The 235' x 15' ± boardwalk and 17.6' x 15.75' ± boardwalk stairs shall be constructed as a wood structure with composite decking and supported by a concrete grade beam with helical supports.

Along the Garvies Point Beach and western end of Glen Cove Creek, approximately 896± linear feet of steel bulkhead shall be constructed within 18" of the existing deteriorated steel bulkhead. A 35± foot return shall be constructed where the bulkhead terminates at Garvies Point Beach. A 30± foot return shall be constructed where the bulkhead terminates at Captain's Cove. The bulkhead shall be constructed as navy-style, with 12" diameter timber pile guards to be installed approximately 5 feet on center seaward of the steel sheet pile. The bulkhead shall be supported by a tie-rod and deadman system extending approximately 30 feet landward of the bulkhead. Approximately 1,045 cubic yards of clean sand shall be placed between the existing and proposed bulkheads for stabilization. To alleviate groundwater pressure landward of the bulkhead, 2" diameter weep holes shall be installed 8 feet on center approximately 6" above MHW and 6" above MLW.

For protection of tidal wetlands along Garvies Point Beach, silt fencing shall be installed at SHW prior to construction of the boardwalk and beach stairs and shall be maintained throughout the duration of construction activities.

### **B. *Captain's Cove Wetland Education Area***

The Captains Cove Wetland Education Area will be established through removal of existing asphalt/concrete debris, restoration of the slope area through re-grading and native plantings, and installation of an observation/ecology pier. Prior to any activities, a row of haybales and silt fencing will be placed at the toe of excavation areas and staked in place to prevent siltation of adjoining wetlands. Slope areas extending from the existing esplanade seaward to the toe of slope will be then excavated to remove asphalt/concrete debris, re-graded, and re-planted to provide increased wildlife habitat and aesthetic improvements. Total restoration area is approximately 19,040 square feet, with 4,500± of high marsh and 14,540± of upland buffer restoration proposed.

Excavation will be accomplished via excavator located on the top of slope. Debris and existing vegetation (primarily non-native and invasive species) will be removed for off-site disposal. The slope will then be re-established utilizing clean fill and 4" of topsoil graded in place. Once re-grading is completed, the slope will be planted in accordance to the Planting Specifications below.

An observation/ecology pier is proposed on east side of Captain's Cove, adjacent to the Regina Maris, to provide public access and educational opportunities. The pier is proposed as an aluminum truss long span boardwalk with open grate decking and shall be irregular (trapezoidal) in shape. Dimensions are

102' x 6' to 82' x 6' to 39' x 15' to 42' x 6' to 40' x 6'. The pier shall be supported by eight 18" diameter concrete columns and eight 6" diameter helical pipe piles.

### **C. *Small Vessel Marina***

A Small Vessel Marina is proposed between the Captain's Cove Ecology Pier and Glen Cove Ferry Terminal. Construction of the Small Vessel Marina will incorporate the relocation of existing intertidal wetlands, stabilization of the wetland area to the west of the marina, reconstruction of the existing bulkhead, dredging of the docking area to -6' depth at MLW, and construction of dock structures.

Prior to any dredging or construction, approximately 7,970± s.f. of intertidal marsh vegetated with native *Spartina alterniflora* will be salvaged and relocated to the proposed "low sill" bulkhead construction area to the east at Renaissance Park. Wetland salvage will incorporate wetland soils, invertebrates, and microorganisms, along with plant biomass above and below ground, to be transferred utilizing the whole-sod salvage method, a wetland relocation equipment and technique developed for a previous project (Appendix A). Gaps between *S. alterniflora* sods will be planted with 2" *S. alterniflora* plugs on 18" centers in accordance with the Planting Specifications below.

The western edge of the marina area will be stabilized to protect the Captain's Cove wetland education area from impacts associated with dredging, construction, and operation of the dock facility. A low sill bulkhead is proposed to contain the marsh and sediments of Captain's Cove following dredging of the Small Vessel Marina. The steel low sill bulkhead shall measure approximately 70' x 2' with an elevation at MLW.

Following relocation of the intertidal marsh and stabilization of the remaining wetland area, the applicant will construct a new composite bulkhead within 18" of the existing deteriorated steel bulkhead. Approximately 458' ± of bulkhead will be constructed navy style using composite sheetpiles and timber piles, supported by a tie-rod and deadman system with weep holes as described for Garvies Point Beach above. Clean sand (554± cy) shall be placed between the existing and proposed bulkheads as fill. The marina area will then be dredged to provide -6' depth at MLW using an excavator or other closed bucket device. Approximately 6,965 cubic yards of spoil will be dredged from a 35,820 square foot area and disposed of at an approved upland facility.

Once dredging is completed, the Small Vessel Marina shall be constructed. The marina will consist of a 321' x 8' ± main timber floating dock, two 56' x 3' aluminum ramps, four 5' wide timber floating docks perpendicular to the main float dock (96', 68', 68', 50'), one 76.5' x 5' timber floating dock parallel to the main float dock on the south end of the west float dock, four 31' x 5' timber finger floats, fifteen 31' x 4' timber finger piers, fifteen 27' x 4' timber finger piers. All floats and piers shall be supported by 12" diameter piles. A total of fifty piles are proposed for support and tie-off.

### **D. *Ferry Terminal***

East of the Small Vessel Marina is the Glen Cove Ferry Project that has been constructed and permitted by others. No work within the ferry terminal project area is proposed with this project.

### **E. *Angler's Club Marina***

The "Angler's Club" facility will be relocated and reconstructed to provide small boat transient dockage. Existing Angler's Club facilities, including the club building and approximately 2,100 square feet of docks, will be relocated approximately 335' east of the current location. Construction activities within the existing Angler's Club include removal of marina facilities and riprap and pile toe wall, and

construction of open cell steel bulkhead at or landward of MHW.

Construction activities within the Angler's Club area and east to the Low Sill Bulkhead Area at Renaissance Park will include removal of the existing riprap and pile toe wall, construction of 595' ± of open cell steel bulkhead landward of the riprap wall and existing bulkhead, construction of 95' ± of open cell steel bulkhead within 18" of the existing deteriorated steel bulkhead, dredging to a depth of -6' at MLW, and reconstruction of the docking facilities. The Angler's Club bulkhead will be constructed using Open Cell Sheet Pile™ technology developed by PND Engineers, Inc. Information on this system is included as Exhibit 1 at the end of this document.

The new Angler's Club location will be dredged to a depth of 6' at MLW using a hydraulic dredge and excavator. Approximately 22,789 square feet of area shall be dredged resulting in 4,431 cubic yards of spoil that will be disposed of at an approved upland facility.

The existing Angler's Club dock/ramp facilities will be replaced with new floating docks. The floating docks will consist of a 444' x 8' ± main timber float, 56' x 3' aluminum ramp, and twenty 25' x 4' timber finger piers. All floats and piers shall be supported by 12" diameter piles. A total of seventy-two piles are proposed for support and tie-off.

#### ***F. Low Sill Bulkhead Area at Renaissance Park***

Construction activities proposed for Renaissance Park, east of the relocated Angler's Club, include upland excavation, removal of the existing steel bulkhead, construction of a low sill steel bulkhead at the seaward edge of the marsh restoration area, construction of an open cell steel bulkhead landward of the restoration area at elevation 11' NAVD, and intertidal marsh creation between the two bulkheads.

Creation of the intertidal marsh area will require excavation of approximately 14,632 cubic yards of upland material. Excavation shall be done prior to removal of the existing steel bulkhead, with sediment disposal at an approved upland site.

Following excavation and bulkhead removal, the proposed low sill steel bulkhead will be constructed in place of the existing deteriorated steel bulkhead. Approximately 470' of low sill bulkhead is proposed to be constructed navy style using composite sheet piles and timber piles, supported by a tie-rod and deadman system with weep holes as described for Garvies Point Beach above. Landward of the excavated intertidal marsh restoration area, approximately 618' ± of open cell steel bulkhead shall be constructed at elevation 11' NAVD.

Approximately 20,726 square feet of intertidal marsh area is proposed at Renaissance Park. To provide suitable substrate for plantings, 768 cubic yards of clean sand shall be graded as a slope from the low sill bulkhead landward to the open cell bulkhead. Marsh area will be established using existing intertidal marsh vegetated with native *Spartina alterniflora* salvaged and relocated from the Small Vessel Marina (7,970 sq. ft.), with the remainder of the marsh (12,756 sq.ft.) to be planted with *Spartina alterniflora* according to the Planting Specifications below.

#### ***G. Transient Marina***

East of Renaissance Park a transient marina will be constructed. Construction activities include upland excavation, dredging of the proposed marina, construction of a new bulkhead landward of existing, removal of existing bulkhead, and construction of dock facilities.

Prior to bulkhead removal, upland excavation and creek dredging shall be performed. Approximately

24,761± cubic yards of upland sediments shall be excavated from a 33,428 square foot area and disposed at an approved upland site. Approximately 10,424± cubic yards of spoil shall be dredged from a 10,052 ± square foot area within Glen Cove Creek. Excavation and dredging shall establish a transient marina depth of -6' at MLW.

Following removal of sediments, 575' of open cell steel bulkhead shall be constructed landward of the existing bulkhead. Once the new bulkhead is in place, approximately 479' ± of deteriorated steel bulkhead shall be removed.

Finally, construction of the transient marina dock facilities will take place. Transient marina facilities include a 460' x 8' ± main floating dock parallel to the bulkhead, and six 77' x 6' floats will run north-south perpendicular to the main float. Off of these floats, twenty 20' x 2.5' finger piers, twenty-four 18' x 2.5' finger piers, and twelve 15' x 2.5' finger piers are proposed. All floating docks are proposed to be secured by 12" diameter timber piles. A total of eighty-one 12" diameter piles are proposed to secure float docks and for tie-off.

#### ***H. Upper Reach of Glen Cove Creek***

Subject to acquisition of properties along the upper reach (east end) of Glen Cove Creek, a public access area with wetland and upland slope restoration is proposed. The upper reach of Glen Cove Creek will be re-developed with construction of a new low sill bulkhead with an elevation at 0.1' NAVD (approximately MSL), creation of 30,751 sq. ft. of intertidal wetlands landward of the low sill bulkhead, construction of a transitional slope with 1,726 sq. ft. of high marsh wetlands and 15,692 square feet of native upland plantings, and construction of a public walkway that shall be elevated above wetlands and constructed with open grate decking. All proposed structures shall be located in place or landward of the existing bulkhead line. Please refer to the Planting Specifications below for restoration details.

#### ***I. Stormwater Discharge***

The Glen Cove Creek Waterfront Redevelopment Project is being designed to store 2" of runoff generated by the project's contributory watershed. Storage of 2" of runoff from the project's watershed will be achieved by use of swales, green roof systems and roof gardens, irrigation collection chambers, detention/infiltration systems, seepage pits, water quality treatment devices/filters and stormwater conveyance systems. The storage/infiltration systems will serve as both water quantity reduction and water quality treatment facilities for the development.

Detailed design of upland stormwater storage and infiltration systems is ongoing and beyond waterfront development jurisdiction. This section shall therefore focus on the existing and proposed stormwater outfalls that discharge to Hempstead Harbor and/or Glen Cove Creek, as these activities are within waterfront permitting jurisdiction.

Currently, there are five (5) stormwater outfall systems that discharge into the project area along Glen Cove Creek (4 outfalls) and Hempstead Harbor (1 outfall). No activities are currently proposed for the outfall discharging to Hempstead Harbor. Similarly, no work is proposed for the ferry terminal outfall, which is outside of this project area. The three remaining outfalls within the project area will be retro-fitted with stormwater pre-treatment units to remove sediments and other floatables prior to discharge.

This project also proposes construction of three additional stormwater outfalls within Glen Cove Creek. Two of these outfalls will discharge road runoff from Garvies Point Road through 36" diameter PVC pipes, and are proposed in conjunction with the road reconstruction project being undertaken by the City of Glen Cove and NYSDOT. Pre-treatment devices such as hydrodynamic separators and/or stormwater

filtration devices will be installed within Garvies Point Road. The third outfall is a proposed 48" diameter PVC pipe, and will discharge runoff from storm events greater than 2" in 24 hours. Pre-treatment will also be installed for this system in the upland portion of the site (beyond waterfront permitting jurisdiction).

## **J. Planting Specifications**

Planting specifications have been provided as part of the revised FEIS and are summarized below. Section- and plan-views of the proposed restoration areas will be submitted to the USACE, NYSDEC, and NYSDOS as part of permit applications for the proposed re-development of the Turning Basin.

### **Plant Species and Size**

*Upland Shrubs* (3-4' in height, 2 gallon containers on 12' centers):

Northern Bayberry	<i>Morella pensylvanica</i>
Groundsel Bush	<i>Baccharis halimifolia</i>
Beach Plum	<i>Prunus maritima</i>

*Upland Herbaceous Plants* (2" plugs on 18" centers):

Switch Grass	<i>Panicum virgatum</i>
Seaside Goldenrod	<i>Solidago sempervirens</i>
Butterfly Milkweed	<i>Asclepias tuberosa</i>
Smooth Aster	<i>Aster laevis</i>

*High Marsh Plants* (2" plugs on 18" centers):

Salt Hay	<i>Spartina patens</i>
Spike Grass	<i>Distichlis spicata</i>

*Low Marsh Plants* (2" plugs on 18" centers):

Smooth Cordgrass	<i>Spartina alterniflora</i>
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Whole Marsh Sods (4-9 sq. ft. sods distributed evenly throughout receiving areas):

### **Planting Windows**

Low Marsh Sod Transplanting: March 1 to June 15

Low Marsh, High Marsh, and Upland Slope Plugs: Spring Season April 15 to June 15

Upland Slope Shrubs: April 1 to May 15

### **Elevation Requirements (NAVD)**

Upland Slope Plants:	> 4.9'
High Marsh Plants:	3.3' – 4.9'
Low Marsh Plants:	0.1' – 3.3'

### **Planting Methods and Specifications**

#### *Site Preparation*

Planting substrates shall be free from debris, noxious weeds, toxic substances or other materials harmful to plant growth. Prior to commencement of planting operations, the Contractor shall complete a Soils Test in accordance with ASTM D 5268 and ASTM D 4972 to determine the pH and organic matter content, as well as soil texture, of the planting substrates. Separate sample collections shall occur for each planting area.

Prior to the commencement of the planting operations, the Contractor shall verify that finished grades are as indicated on the plans, and the finishing and compaction requirements have been completed in accordance with design specifications. After grading is complete, heavy equipment is prohibited from entering planting areas.

#### *Herbivory Fence*

Herbivory Fence shall be installed after final grades in the marsh areas and upland slope planting areas are completed. Herbivory Fence shall be installed prior to or concurrently with installation of the low and high marsh and upland slope plants. Under no circumstances are these plants to be planted outside the containment of a



satisfactorily installed Herbivory Fence.

Herbivory Fence shall be made of the following materials:

Wood Stakes on 10' centers: Untreated hardwood lumber, pointed-tip stakes. Stakes must be free from large knots that weaken the strength of the stake.

Fence Fabric: 6-ft high panel deer exclusion fence, UV-stabilized, minimum 600 lbs/ sf breaking strength, or equivalent item

Fabric may be attached to wood stakes using heavy-duty zip-ties or 1.5 inch hot dipped galvanized u-nails.

Nylon twine: Braided nylon mason's line #18 gauge cord with tensile strength of 150 pounds.

Plastic flagging tape or Mylar tape

Herbivory Fence shall be installed after final grades in the marsh and upland slope planting areas are completed and approved by. Herbivory Fence shall be installed prior to or concurrently with installation of the marsh and upland plants. Under no circumstances are these plants to be planted outside the containment of a satisfactorily installed Herbivory Fence.

Stakes shall be pounded vertically into the substrate. Herbivory Fence shall be installed a minimum of 18 inches away from the first row of wetland planting. At least one stake shall be also be installed in the interior of each cell to provide support for nylon twine and flagging tape. Planting cells should be approximately 50' x 50' in size. The fence fabric shall be secured at the top, middle, and bottom to the wood stakes with plastic ties. All fence shall be placed so that the bottom of the fence lies entirely on the substrate. Upon completion of the outer perimeter of each cell and the installation of interior stakes, nylon twine shall be strung across the tops of the planting areas from the perimeter stakes to the interior stakes. The nylon twine shall be wrapped around the top of the stake several times. The twine shall be strung to the next stake and wrapped again before continuing on to the next stake. Mylar or plastic flagging, trailing at least 12 inches of tape from the tie, shall be tied along the interior nylon twine. Stringing of the interior twine and tying of flagging may be done after planting in a cell is completed; however, no planted area is to be left exposed without interior lines and flagging at the end of any workday. No unused strands of nylon twine, fence fabric, packaging materials, wood stakes or any other construction debris shall be left on the Project Site after fence installation and guarantee maintenance has been completed. Herbivory fencing may be removed after two growing seasons if 85% coverage/survivorship is attained.

#### *Plant Material*

Plants shall be well-shaped, well-grown, vigorous plants having healthy and well branched root systems. Plants shall be free from disease, harmful insects and insect eggs, sun-scald injury, disfigurement, and abrasion. Plants shall be free of shock or damage to branches, trunks or root systems that may occur during digging and preparation for shipment, method of shipment or actual shipment. Intertidal marsh plants shall be acclimated to saline conditions (20 ppt) when delivered and this needs to be maintain until they are planted. Plants should be from a suitable geographic location to ensure proper adaptation to Long Island climate and edaphic conditions. Plants shall not be injured in handling. Plants shall not be handled by the trunk or stems. Materials shall not be dropped from vehicles.

#### *Plant Installation*

##### Plugs:

The top of the rootstock mass shall be a minimum of 1 inch below the soil surface. Plants shall be set plumb, with the root system oriented downward, and held in position until sufficient soil has been firmly placed by hand around the root mass. It shall be unacceptable to step on or around planting holes for the purposed of placing backfill. All planting shall be done "in the dry", i.e. while the tide is below the elevations of the area being planted.

##### Shrubs:

Plant pits shall be dug approximately 4 inches wider than the stock size. To encourage well-aerated soil to be available to the root system for favorable root growth, plant pits shall be constructed with sides sloping towards the base. Prior to placing a shrub, fertilizer shall be placed in the bottom of each plant pit. At no time shall fertilizer be placed in the water column or on top of the soil surface.

Fertilizers shall only be applied to upland shrubs. Shrub shall be a slow release tablet with a 20-10-5 nitrogen-



phosphorus-potassium ratio. Fertilization rate shall not exceed manufacturer's specifications for appropriate-sized shrub.

#### Transplanting of Low Marsh Sods:

Marsh sods must be re-planted within 48 hours of being removed or uprooted. Marsh sods may not be transplanted when the ambient temperature are below 33 degrees Fahrenheit.

Any wrack and debris that has collected in the low marsh planting areas shall be thoroughly removed and disposed of in an offsite licensed facility prior to transplanting. These areas shall be raked clean and smooth. All transplanting shall be done "in the dry", i.e. while the tide is below the elevations of the area being planted. The Contractor shall schedule planting on a daily basis to account for the diurnal tidal cycles. Transplanting holes shall not be dug while planting substrates are inundated.

Sods shall be removed with caution by a long reach excavator position on top of the existing or reconstructed bulkhead. A Wetland Specialist shall be on-site to supervise transplanting of low marsh sods during all transplanting activities. Excavator bucket shall be guided to proper depth to ensure that roots and rhizomes remain intact. The long reach excavator may place a stockpile of sods and then have other machinery, such as a bobcat, move the hummocks to the final transplant area. Transplanted marsh sods shall be approximately 4-9 square feet in area. Holes for the sods shall be dug, so that the backfill goes no higher than the top of any mussels at the base of the plant material or no lower than the base of the mussel bed. If mussels are not present, the hummocks must be backfilled up to the maroon part of the stems of the *Spartina alterniflora*. The green part *Spartina alterniflora* stems should not be covered with backfill material. All backfill shall be smoothed, leveled and tamped so that there are no holes, divots or ponding around the sods. The grade immediately around the sods shall be re-checked no sooner than 48 hours after fill placement and any holes, divots or ponding must be fixed by adding fill or regrading.

#### Maintenance

Upland plants shall be irrigated to ensure 1 inch of water per week through natural precipitation or supplemented by irrigation.

Any plants not installed on the day of delivery at the project site shall be stored and protected in designated areas from direct exposure to wind and sun. Any areas used for temporary storage of low and high marsh plants must be enclosed with perimeter Herbivory Fence to prevent grazing by waterfowl. Plants must not be stored on-site for more than 7 days before planting. If planting is delayed for more than 6 hours after delivery, the plants shall be watered.

Installed plants shall be maintained in a healthy growing condition. Maintenance of planting areas during construction shall include preventing the intrusion of weeds, grass, and other undesired vegetation, watering, and adjusting grades for settling. Grass, weeds, and other undesired vegetation shall be removed before reaching a maximum height of 12 inches.

Any planted areas disturbed prior to completion of five growing seasons shall be repaired or reinstalled in accordance with the above specifications.

During the guarantee period and until final acceptance, mechanical weed removal, hand pulling and herbicide application may be utilized to keep materials free from invasive vegetation.

During the maintenance period, twice-yearly inspections (between May and August) shall be conducted to identify and remove any invasive vegetation such as *Phragmites australis* (Common reed grass), *Ailanthus altissima* (Tree-of-Heaven), *Eleagnus angustifolia* (Russian olive), *Artemisia vulgaris* (mugwort) or other invasive species. All plant vegetation and naturally recruiting native vegetation shall remain undisturbed. Manual weed removal shall consist of the removal of stems and rhizomes. Should invasives cover 5% or more of the site herbicide may be applied.

Necessary environmental permits must be obtained for any herbicide treatments. Herbicides shall be used with extreme caution in regard to safety and health. All manufacturer's safety instructions to avoid adverse impacts to human health must be followed. Any spray materials shall be applied with great care to avoid collateral damage to surrounding, native or planted vegetation. Applications to herbaceous invasives shall consist of a glyphosate based herbicide with a non-ionic surfactant. Applications to woody invasives shall consist of spraying the cut stump. All herbicides shall be applied by hand painting, back-pack sprayer or other controlled means to prevent damage to

desirable planted vegetation. All spraying shall be done at times when wind does not exceed a velocity of five (5) miles per hour.

#### *Survivorship Guarantee*

Applicant shall be responsible for ensuring 85 percent survival of the planted vegetation over five (5) growing seasons. 85 percent survival shall not be required over five growing seasons if greater than 85% coverage of native vegetation is observed. The plant guarantee period shall commence on the date of the completion of construction, and shall end on October 15 on the fifth growing season. Plant losses due to attributed to herbivores, disease, drought, wind, or storm events shall not lower the minimum survival or coverage requirements. If replacement plants are installed at the end of the five year period to attain 85% survival or coverage, replacement plants shall be guaranteed for an additional growing season from the date of replanting. For low marsh sods, replacement will consist of a 3 ft by 3 ft plot with *Spartina alterniflora* plugs placed 6 inches on center, or a total of 36 plugs.

## **II. Presumptively Incompatible Use**

According to Article 25 of the Environmental Conservation Law, the proposed Small Vessel Marina and Captain's Cove Observation/Ecology Pier include the following proposed activities that are considered presumptively incompatible uses in a tidal wetland or the adjacent area of a tidal wetland (6 NYCRR Part 661):

- (15) Constructing open pile catwalks and docks more than four feet in width, or construction of more than one open pile catwalk and/or dock not greater than four feet in width for any principal building;
- (17) Installing a floating dock(s) totaling 200 sq. ft. or greater;
- (27) Dredging;
- (29) Construction of bulkheads and shoreline stabilization structures.

### **A. Site Characteristics**

The majority of the study area, as well as a significant portion of Glen Cove Creek, exhibits characteristics typical of intense commercial and industrial use occurring over extended historical time periods. The past and present uses of the project site, along with site contamination and remediation activities, are described in detail in Section II.B of the Final Environmental Impact Statement ("FEIS"). Site characteristics associated with proposed activities within NYSDEC Article 25 jurisdiction are described in the following paragraphs.

Historical dredging and shoreline hardening structures in the area have resulted in the elimination of all natural shoreline areas with the exception of the tidal wetlands located at Captain's Cove and at Garvies Point Beach. These areas contain remnants of the natural shoreline assemblages formerly common within the Hempstead Harbor estuary.

#### *Captain's Cove and Small Vessel Marina*

The area known locally as the Captain's Cove has intertidal marsh, dominated by smooth cordgrass (*Spartina alterniflora*); high marsh dominated by common reed (*Phragmites australis*), and marsh elder (*Iva frutescens*); and open areas of shoals and mudflats. The steeply sloped transition zone located landward of the intertidal and high marshes in Captain's Cove contains a variety of invasive pioneer species such as common reed (*Phragmites australis*), tree of heaven (*Ailanthus altissima*), mugwort (*Artemisia vulgaris*), and honey locust (*Gleditsia triacanthas*). Much of this transition slope contains large amounts of concrete and debris previously deposited to harden and stabilize the slope.

The area of the Small Vessel Marina is similar to Captain's Cove, with intertidal marsh dominated by smooth cordgrass (*Spartina alterniflora*); high marsh dominated by common reed (*Phragmites*

*australis*); and open areas of shoals and mudflats. The Small Vessel Marina site is bulkheaded landward of tidal wetlands, and does not feature any of the native or invasive transition zone vegetation found in Captain's Cove.

The tidal wetlands within Captain's Cove and the Small Vessel Marina are classified as Intertidal Marsh [IM], High Marsh [HM], and Coastal Shoals, Bars and Flats [SM] by NYSDEC. In total, approximately 1,030 linear feet of intertidal wetlands and shoals/mudflats are present in Captain's Cove.

#### *Garvies Point Beach*

The terminus of Garvies Point Road provides an excellent view of the existing beach area. The vegetative assemblage found within the site is located seaward of the beach area and is primarily dominated by smooth cordgrass (*Spartina alterniflora*) interspersed by open shoal/mudflat areas. Upland adjacent areas located above apparent high water contain a narrow band of pioneer species within the sandy substrate.

### ***B. Reasons to Overcome Determination of Incompatible Use and Issue a Permit***

#### **1. Alternate Project Site(s)**

The applicant determined that the Small Vessel Marina should be located in an area of shoreline with an existing bulkhead east of Captain's Cove, to allow for restoration of a naturally vegetated slope within Captain's Cove. A number of alternate locations were then considered during pre-application discussions with NYSDEC's Bureau of Marine Habitat Protection.

At the time of initial pre-application consultations with NYSDEC, the applicant contemplated construction of the marina within Captain's Cove. This location would have provided docking facilities for a greater number of vessels than the current location and would have accommodated larger vessels. However, this location would have resulted in significant adverse environmental impacts associated with the loss of intertidal marsh and mudflat areas and the habitat afforded to shorebirds, benthic invertebrates, and finfish. At that time, NYSDEC had recommended that the applicant consider the placement of the marina at the bulkheaded shoreline located just to the east of Captain's Cove and include the construction of a wingwall along the western edge of the marina to stabilize the boundary between the dredged marina and the intertidal wetlands. In addition, NYSDEC indicated that the applicant would need to provide adequate mitigation for the intertidal wetlands lost due the construction of the large vessel marina.

The applicant recognizes that location of the Small Vessel Marina further east within Glen Cove Creek would reduce or avoid the adverse environmental impact due to the loss of intertidal wetlands. Accordingly, the applicant previously investigated the possibility of locating the marina further upstream when it was initially proposed to accommodate large vessels. However, when the marina was proposed to accommodate larger vessels, upstream locations were not feasible due to navigational safety reasons. Following SEQRA review, issuance of the Findings Statement, and approval of the PUD Master Development Plans, and due to current economic considerations, the previously proposed large vessel marina was modified to a Small Vessel Marina in the same location but with a slightly smaller footprint and shallower dredge depth.

Alternative locations for the modified Small Vessel Marina were not considered feasible and were dismissed. The only alternate locations for the Small Vessel Marina are between the Ferry Terminal and Angler's Club, Renaissance Park, or the Upper Reach of Glen Cove Creek. Relocation of the Angler's Club to the east was required for safe operation and navigation of the City's Ferry Terminal, so

placement of an additional marina between the Ferry Terminal and relocated Angler's Club is not possible. Renaissance Park and the Upper Reach are proposed as wetland restoration areas with public access, and were therefore dismissed. In conclusion, due to the extensive review regarding location of marinas and operational/navigational safety within Glen Cove Creek, and mitigation already proposed and conceptually approved during the SEQRA and PUD Master Plan phase of this project, alternative locations were dismissed for the modified Small Vessel Marina.

## **2. Alternative Observation/Ecology Pier Designs Considered for Captain's Cove**

There were several alternative designs considered for the Captain's Cove observation/ecology pier that included alternate locations and alternate lengths/widths for the pier. As stated above, public access is a major component and considered essential to the success of the Glen Cove Creek Waterfront Redevelopment Project. After extensive review and discussions during the SEQRA phase of the project, the following alternatives for the Captain's Cove observation/ecology pier are presented: (1) locate the pier at a major public access point in the western third of Captain's Cove, (2) locate the pier on the western boundary of Captain's Cove, and (3) locate the pier on the eastern boundary of Captain's Cove adjacent to the proposed Small Vessel Marina.

PUD Master Plans included in the FEIS depict the pier in location (1), the western third of Captain's Cove, with the pier extending straight out from the slope. This alternative proposed a pier that was 155' long by 10' wide with a 30' wide amphitheater in the middle of the pier. It was dismissed during site plan development for several reasons, including potential environmental impacts, permitting and cost.

During site plan development, the applicant looked at two alternate locations for the observation/ecology pier, on the west and east sides of Captain's Cove. Locating the pier on one side of the cove would minimize environmental and fragmentation impacts within the cove, and was considered optimal by regulatory agencies. After review of these alternative locations, the west side of Captain's Cove was dismissed in favor of the east side of Captain's Cove, where the pier could be sited close to the 'Regina Maris' (vessel) display and the Small Vessel Marina.

## **3. Mitigation Measures**

The applicant acknowledges that an environmental impact associated with the proposed Small Vessel Marina includes the loss of approximately 15,400± sq. ft. of vegetated wetlands. Approximately 8,000± sq. ft. of this wetland area is comprised of native *Spartina alterniflora* grasses, while the remainder is comprised of invasive *Phragmites australis*. In addition, the proposed location of the Small Vessel Marina will result in the loss of approximately 8,800 square feet of intertidal mudflat and shoal habitats. In total, 24,200± square feet of tidal wetlands will be relocated or lost with dredging and construction of the Small Vessel Marina.

In addition to wetland impacts associated with construction of the Small Vessel Marina, reconstruction of the bulkhead 18" seaward of existing for those areas west of the Ferry Terminal will impact approximately 2,400± square feet of littoral zone (LZ) wetlands. This loss is more than offset by the creation of 45,200± square feet of additional littoral zone and creek areas at the Angler's Club (9,000± sq.ft.) and Transient Marina (36,200± sq.ft.), where these areas are currently upland. The mitigation discussion below will therefore focus on the project's intertidal and mudflat wetlands.

### **Wetland Restoration and Relocation Mitigation Measures**

The applicant proposes to mitigate for this loss of wetlands with the creation of 51,477 square feet of vegetated intertidal marsh and 6,226 square feet of high marsh, for a total of 57,703 square feet of vegetated wetlands in several locations along the project site as outlined in Table 1 and described in the

following paragraphs.

Table 1. Small Vessel Marina comparison of wetland impacts and mitigation.

Wetland Impacts Analysis and Proposed Mitigation <sup>3</sup>							
Wetland Type	Wetland Class	Code	Existing to be Impacted		NYSDEC Mitigation Requirement	2014 Site Plans	
Vegetated Wetland <sup>1</sup>	Intertidal Marsh	IM	7,970	Proposed relocation	23,910	20,726	Renaissance Park low sill bulkhead area
						30,751	Upper reach Glen Cove Creek low sill bulkhead area
	High Marsh	HM	0		0	4,500	Captain's Cove slope restoration
	<i>Phragmites</i> Marsh	PM	7,410	To be destroyed	22,230	1,726	Upper reach Glen Cove Creek slope
Total Veg. Wetland			15,380		46,140	57,703	
Coastal Shoal/Mudflat <sup>1</sup>		SM	8,840		8,840	0	
Littoral Zone <sup>2</sup>		LZ	2,360		2,360	45,218	Angler's Club and Transient Marina – new littoral zone and creek @ existing upland
Total Wetland			26,580		57,340	102,921	

<sup>1</sup> Wetland impacts associated with dredging and construction of the Small Vessel Marina.

<sup>2</sup> Wetland impacts associated with construction of bulkhead 18" seaward of existing.

#### Low sill Bulkhead at Renaissance Park

The proposed marsh located landward of the low sill bulkhead at Renaissance Park will provide 20,726 sq. ft. of native intertidal vegetation (*Spartina alterniflora*), whereas the intertidal zone within the area of the proposed Small Vessel Marina contains only 7,970 sq. ft. of native vegetation. This increase in native vegetation coverage compensates for the disturbance of the existing wetland community in the area of the Small Vessel Marina and the physical separation of the proposed wetland from other wetland areas in Captain's Cove.

#### Captain's Cove Slope Restoration

The restoration proposed at Captain's Cove will result in the creation of a vegetated native high marsh and upland slope landward of Captain's Cove wetlands (refer to Project Description above). Slope restoration includes creation of approximately 4,500 square feet of native high marsh wetlands as a transition between intertidal marsh associated with Captain's Cove and the upland slope area.

#### Upper Reach of Glen Cove Creek

The upper reach of Glen Cove Creek will be re-developed by construction of a new low sill bulkhead with an elevation at -0.1' NAVD (approximately MSL), creation of 30,751 sq. ft. of intertidal wetlands landward of the low sill bulkhead, and construction of a transitional slope with 1,726 sq. ft. of native high marsh wetlands and 15,692 square feet of native upland plantings. All proposed structures shall be located in place or landward of the existing bulkhead line.

Monitoring and maintenance of plant survivorship in all wetland creation and restoration areas will be conducted for five years subsequent to planting.

Wetland and buffer area restoration was reviewed extensively during the SEQRA process, with both the City of Glen Cove and the NYSDEC. The restoration plan outlined above was determined to meet the mitigation requirements set forth by NYSDEC and was accepted by the City. Restoration of vegetated



wetland areas, in lieu of creation of mud-flat areas to offset impacts in-kind, was preferred and selected for several reasons. First, there is extensive loss of vegetated wetlands throughout Long Island over the last several decades, with documented losses of over 22% of intertidal marsh in the Long Island Sound Estuary, which includes Glen Cove Creek (Cameron Engineering & Associates, 2015). Loss of intertidal marsh was found to be due to several biological and physical factors, including formation of pannes and ponds within the marsh, conversion of marsh to mudflat, widening of tidal creeks and man-made ditches, and erosion/retreat of the seaward edge of the marsh. Given that intertidal marsh is declining and mudflats are increasing, and Captain's Cove contains a significant mudflat area already, it was determined that creation of intertidal marsh would be a priority for restoration within Glen Cove Creek.

Secondly, creation and maintenance of a mudflat habitat is difficult. Mudflats are comprised of fine-grained sediments, which are (1) difficult to obtain and (2) difficult to design and maintain for a sloped wetland landward of a bulkhead. Given the small area of mudflat impacted (8,840± square feet) and the size and contiguity of the existing Captain's Cove mudflat (170,000± square feet), NYSDEC and the City agreed that in-kind restoration of mudflat habitat would not be required, and that, as stated above, restoration of intertidal marsh habitat would be priority.

#### Improved Sediment Quality Mitigation Measures

Sediment sampling for the proposed marina dredging, and for excavation for the proposed Angler's Club, was conducted in accordance with *Sediment Sampling for Proposed Marina Dredging*, prepared by Land Use Ecological Services, Inc. (LUES) and last revised July 9, 2015. This plan was reviewed and accepted by USACE, USEPA, and NYSDEC.

Sediment sampling for the proposed excavation at the Low Sill Bulkhead and Transient Marina areas was conducted in accordance with *Pre-Construction Confirmatory/Data Gap Subsurface Investigation Work Plan*, prepared by PW Grosser December 2013. This plan was reviewed and accepted by NYSDEC and USEPA.

Sampling was supervised by P.W. Grosser Consulting (PWG) and conducted by Posillico Civil, Inc. (Posillico). Radiation monitoring was conducted by Safety & Ecology Corporation (SEC). Complete sediment sampling results are provided in the *Glen Cove Creek Sediment Sampling Summary Report* prepared by PWG (October 2015). Results from this report are summarized in the following paragraphs.

Upland sediments were generally characterized as silts and sands in shallow depths with anaerobic organic silts with some shell fragments observed in deeper segments. Creek sediments were generally characterized by anaerobic organic silts and sands, with some shell fragments observed in shallow segments.

#### *(1) TOC and Grain Size*

Marina dredging and Angler's Club upland excavation sediment samples were collected from sixteen (16) locations and three (3) segments, for a total analysis of 48 samples for total organic carbon (TOC) and grain size. Of these, twelve (12) samples contained TOC of less than 0.5% and had > 10% of sediments passing the No. 200 sieve, and no further analysis was performed on those samples. The remaining thirty-six (36) samples were analyzed for all parameters as outlined in the *Sediment Sampling for Proposed Marina Dredging*, these results are summarized below.

Upland excavation sediments for the Low Sill Bulkhead and Transient Marina areas were collected from eleven (11) locations. Although analyzed in segments, all segments from these samples represent the

excavation material (Segment A in the *Sediment Sampling for Proposed Marina Dredging*) and were therefore analyzed as a single sample for each location. These samples were analyzed for potential contaminants; TOC and grain size analysis were not performed.

#### (2) VOCs

Twenty-eight (28) of the forty-seven (47) samples analyzed for volatile organic compounds (VOCs) had results that exceeded the Protection of Groundwater Soil Cleanup Objective (SCO) contained in 6NYCRR Part 375: Environmental Remediation Programs. No samples had exceedances of the Restricted Residential Use SCO. Exceedances were for acetone, benzene, 2-butanone (1 sample), and vinyl chloride (1 sample).

#### (3) SVOCs

Fifteen (15) of the samples analyzed had results that exceeded the Protection of Groundwater SCO, with some results also exceeding the Restricted Residential Use (RRU) SCO. Protection of Groundwater exceedances were noted for benzo(a)anthracene, benzo(a)pyrene, chrysene, and pentaclorophenol. RRU SCO exceedances were benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, and indeno(1,2,3-cd) pyrene. These SVOCs are typical of petroleum related compounds, with concentrations generally increasing to the east.

#### (4) Metals

Metals were detected above the Protection of Groundwater SCO in thirty-four (34) of the samples, and above the Restricted Residential Use SCO in seven (7) samples. Exceedances included arsenic, cadmium, chromium (III), manganese, nickel, and selenium.

#### (5) Pesticides / Herbicides

Pesticides and herbicides were detected above the Protection of Groundwater SCO for alpha-BHC in two samples, LT-T-007 and LT-T-008. Samples LT-T-002 through LT-T-012 all exceeded the RRU SCO for aldrin.

#### (6) PCBs

PCBs were not detected above the Protection of Groundwater or RRU SCO's in any of the samples collected.

#### (7) TOGS 5.9.1

In addition to analysis of samples in accordance with Part 375, analysis was performed in accordance with the NYSDEC Technical & Operational Guidance Series (TOGS) 5.9.1: In-Water and Riparian Management of Sediment and Dredged Material. Forty-five (45) of the forty-seven (47) samples had exceedances that result in classification of the sediments as Class B: Moderate Contamination – Chronic Toxicity to Aquatic Life. Twenty-seven (27) of the samples had exceedances that qualify those sediments as Class C: Acute Toxicity to Aquatic Life.

Exceedances were for Metals (arsenic, cadmium, copper, lead, mercury), PAHs and Petroleum-Related Compounds (Total BTEX, Total PAH), and Chlorinated Hydrocarbons (PCVs, dioxins). There were no TOGS exceedances for Pesticides in dredge materials, but there were exceedances for PCB's/Pesticides (sum of DDT+DDD+DDE, chlordane) in the upland excavation materials in samples LT-T-002 through LT-T-012.

Contaminated sediments located within the Small Vessel Marina, relocated Angler's Club, and Transient Marina will be removed during excavation/dredging and disposed of at an approved upland location. This contaminant removal represents an environmental benefit to Glen Cove Creek and Hempstead Harbor, as the construction of these marinas will slightly reduce the quantity of contaminants that may



be transported to these downstream habitats. The three proposed marinas will result in the removal of up to 21,800 ± cubic yards of potentially contaminated in-creek substrate (volume depends on depth of contamination). Sediment quality is further improved with the wetland restoration components described above, as these areas will utilize clean, uncontaminated sediments as specified in the restoration specifications.

### **C. Conclusions**

In conclusion, additional docking and public water access with the Small Vessel Marina is essential to the economic sustainability of the proposed action, and the entire project will provide a series of vibrant public areas along the esplanade. The applicant has undertaken careful consideration of the environmental and navigational impacts of the proposed Small Vessel Marina on Glen Cove Creek and has solicited feedback from the NYSDEC and the City of Glen Cove on multiple occasions regarding the marina location and design. This impact analysis has led the applicant to determine that the proposed location at the eastern edge of Captain's Cove is the only viable location for the Small Vessel Marina.

The applicant recognizes that there are potential adverse environmental impacts associated with the proposed Small Vessel Marina location, including the loss of vegetated intertidal and mudflat habitats. However, the applicant is proposing relocation and creation of 57,703 square feet of vegetated intertidal and high marsh areas in several areas along Glen Cove Creek as mitigation for the loss of 15,400± square feet of intertidal wetlands and 8,840± square feet of shoal/mudflat wetlands in the Small Vessel Marina location. Furthermore, dredging for the Small Vessel Marina and creation of wetland restoration and buffer areas will remove contaminated sediments from these areas, improving sediment quality throughout Glen Cove Creek.

In conclusion, the arguments presented above have demonstrated that the proposed Small Vessel Marina overcomes a determination of presumptive incompatibility. Given the economic and public need for the Small Vessel Marina in the context of the Glen Cove Creek Waterfront Redevelopment Project, the alternative locations and designs considered, and the mitigation proposed, approval should be granted.

## **III. Literature Cited**

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